

SEQUENCE LISTING

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<120> NPC1L1 (NPC3) AND METHODS OF USE THEREOF

<130> JB01603-K3-US

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<150> 10/621,758

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<170> PatentIn version 3.1

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acc ttt tac gaa gag tgc ggg aaa aac cca gag ctc tct gga ggc ctc		144
Thr Phe Tyr Glu Glu Cys Gly Lys Asn Pro Glu Leu Ser Gly Gly Leu		
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Val Thr Gly Glu His Leu Ala Leu Leu Gln Arg Ile Cys Pro Arg Leu		
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Tyr Asn Gly Pro Asn Thr Phe Ala Cys Cys Ser Thr Lys Gln Leu		
85 90 95		
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Leu Ser Leu Glu Ser Ser Met Ser Ile Thr Lys Ala Leu Leu Thr Arg		
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Cys Pro Ala Cys Ser Asp Asn Phe Val Ser Leu His Cys His Asn Thr		
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Cys Ser Pro Asp Gln Ser Leu Phe Ile Asn Val Thr Arg Val Val Glu		
130 135 140		
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Arg Gly Ala Gly Glu Pro Pro Ala Val Val Ala Tyr Glu Ala Phe Tyr		
145 150 155 160		
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Gln Arg Ser Phe Ala Glu Lys Ala Tyr Glu Ser Cys Ser Gln Val Arg		
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Ile Pro Ala Ala Ser Leu Ala Val Gly Ser Met Cys Gly Val Tyr		
180 185 190		
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cct ggc cag gcc cta ccg gat ggg atc cag cca ctg aat ggg aag atc Pro Gly Gln Ala Leu Pro Asp Gly Ile Gln Pro Leu Asn Gly Lys Ile 225	230	235	720
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Asp Ala Thr Val Phe Met Gly Ser Ala Val Phe Ala Gly Val Ala			
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Ser Tyr Leu Gly Pro Asp Val Asn Gln Ala Leu Val Gln Glu Glu			
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Val Thr Gly Glu His Leu Ala Leu Leu Gln Arg Ile Cys Pro Arg Leu
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Tyr Asn Gly Pro Asn Thr Thr Phe Ala Cys Cys Ser Thr Lys Gln Leu
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Cys Pro Ala Cys Ser Asp Asn Phe Val Ser Leu His Cys His Asn Thr
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Leu Thr Val Leu Ala Leu Ser Phe Ile Val Val Ile Ala Leu Ala Ala
355 360 365

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370 375 380

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595 600 605

Asp Lys Phe Gln Val Ala Phe Ser Ala Glu Arg Ser Leu Glu Asp Glu
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625 630 635 640

Ile Ile Val Phe Leu Tyr Ile Ser Leu Ala Leu Gly Ser Tyr Ser Arg
645 650 655

Cys Ser Arg Val Ala Val Glu Ser Lys Ala Thr Leu Gly Leu Gly Gly
660 665 670

Val Ile Val Val Leu Gly Ala Val Leu Ala Ala Met Gly Phe Tyr Ser
675 680 685

Tyr Leu Gly Val Pro Ser Ser Leu Val Ile Ile Gln Val Val Pro Phe
690 695 700

Leu Val Leu Ala Val Gly Ala Asp Asn Ile Phe Ile Phe Val Leu Glu
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Tyr Gln Arg Leu Pro Arg Met Pro Gly Glu Gln Arg Glu Ala His Ile
725 730 735

Gly Arg Thr Leu Gly Ser Val Ala Pro Ser Met Leu Leu Cys Ser Leu

740

745

750

Ser Glu Ala Ile Cys Phe Phe Leu Gly Ala Leu Thr Pro Met Pro Ala
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Val Arg Thr Phe Ala Leu Thr Ser Gly Leu Ala Ile Ile Leu Asp Phe
770 775 780

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805 810 815

Lys Leu Pro Pro Pro Lys Glu Gly Leu Leu Leu Arg Phe Phe
820 825 830

Arg Lys Ile Tyr Ala Pro Phe Leu Leu His Arg Phe Ile Arg Pro Val
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850 855 860

Cys Asn Ile Asn Val Gly Leu Asp Gln Glu Leu Ala Leu Pro Lys Asp
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Ser Tyr Leu Ile Asp Tyr Phe Leu Phe Leu Asn Arg Tyr Leu Glu Val
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900 905 910

Glu Ala Gly Met Asn Ala Thr Cys Ser Ser Ala Gly Cys Lys Ser Phe
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Ser Leu Thr Gln Lys Ile Gln Tyr Ala Ser Glu Phe Pro Asp Gln Ser
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Tyr Val Ala Ile Ala Ala Ser Ser Trp Val Asp Asp Phe Ile Asp Trp
945 950 955 960

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Lys Asp Glu Phe Cys Pro Ser Thr Asp Thr Ser Phe Asn Cys Leu Lys
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Asn Cys Met Asn Arg Thr Leu Gly Pro Val Arg Pro Thr Ala Glu Gln
995 1000 1005

Phe His Lys Tyr Leu Pro Trp Phe Leu Asn Asp Pro Pro Asn Ile
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Met Thr Asn Phe Pro Gly Ile Leu Ile Leu Gly Phe Ala Gln Ala
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Lys Leu Ala Ser Glu Ala Ala Val Ala Pro Glu Pro Ser Cys Pro
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165 170 175	
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gca cgt tgc aat gag tcc caa ggt gac gac gtg gcg acc tgc tcc tgc Ala Arg Cys Asn Glu Ser Gln Gly Asp Asp Val Ala Thr Cys Ser Cys	768
245 250 255	
caa gac tgt gct gca tcc tgt cct gcc ata gcc cgc ccc cag gcc ctc Gln Asp Cys Ala Ala Ser Cys Pro Ala Ile Ala Arg Pro Gln Ala Leu	816
260 265 270	

gac tcc acc ttc tac ctg ggc cag atg ccg ggc agt ctg gtc ctc atc Asp Ser Thr Phe Tyr Leu Gly Gln Met Pro Gly Ser Leu Val Leu Ile 275 280 285	864
atc atc ctc tgc tct gtc ttc gct gtg gtc acc atc ctg ctt gtg gga Ile Ile Leu Cys Ser Val Phe Ala Val Val Thr Ile Leu Leu Val Gly 290 295 300	912
ttc cgt gtg gcc ccc gcc agg gac aaa agc aag atg gtg gac ccc aag Phe Arg Val Ala Pro Ala Arg Asp Lys Ser Lys Met Val Asp Pro Lys 305 310 315 320	960
aag ggc acc agc ctc tct gac aag ctc agc ttc tcc acc cac acc ctc Lys Gly Thr Ser Leu Ser Asp Lys Leu Ser Phe Ser Thr His Thr Leu 325 330 335	1008
ctt ggc cag ttc ttc cag ggc tgg ggc acg tgg gtg gct tcg tgg cct Leu Gly Gln Phe Phe Gln Gly Trp Gly Thr Trp Val Ala Ser Trp Pro 340 345 350	1056
ctg acc atc ttg gtg cta tct gtc atc ccg gtg gtg gcc ttg gca gcg Leu Thr Ile Leu Val Leu Ser Val Ile Pro Val Val Ala Leu Ala Ala 355 360 365	1104
ggc ctg gtc ttt aca gaa ctc act acg gac ccc gtg gag ctg tgg tcg Gly Leu Val Phe Thr Glu Leu Thr Thr Asp Pro Val Glu Leu Trp Ser 370 375 380	1152
gcc ccc aac agc caa gcc cg ^g agt gag aaa gct ttc cat gac cag cat Ala Pro Asn Ser Gln Ala Arg Ser Glu Lys Ala Phe His Asp Gln His 385 390 395 400	1200
ttc ggc ccc ttc ttc cga acc aac cag gtg atc ctg acg gct cct aac Phe Gly Pro Phe Phe Arg Thr Asn Gln Val Ile Leu Thr Ala Pro Asn 405 410 415	1248
cgg tcc agc tac agg tat gac tct ctg ctg ctg ggg ccc aag aac ttc Arg Ser Ser Tyr Arg Tyr Asp Ser Leu Leu Leu Gly Pro Lys Asn Phe 420 425 430	1296
agc gga atc ctg gac ctg gac ttg ctg ctg gag ctg cta gag ctg cag Ser Gly Ile Leu Asp Leu Asp Leu Leu Leu Glu Leu Leu Glu Leu Gln 435 440 445	1344
gag agg ctg cgg cac ctc cag gta tgg tcg ccc gaa gca cag cgc aac Glu Arg Leu Arg His Leu Gln Val Trp Ser Pro Glu Ala Gln Arg Asn 450 455 460	1392
atc tcc ctg cag gac atc tgc tac gcc ccc ctc aat ccg gac aat acc Ile Ser Leu Gln Asp Ile Cys Tyr Ala Pro Leu Asn Pro Asp Asn Thr 465 470 475 480	1440
agt ctc tac gac tgc atc aac agc ctc ctg cag tat ttc cag aac Ser Leu Tyr Asp Cys Cys Ile Asn Ser Leu Leu Gln Tyr Phe Gln Asn 485 490 495	1488
aac cgc acg ctc ctg ctc aca gcc aac cag aca ctg atg ggg cag Asn Arg Thr Leu Leu Leu Thr Ala Asn Gln Thr Leu Met Gly Gln 500 505 510	1536
acc tcc caa gtc gac tgg aag gac cat ttt ctg tac tgt gcc aat gcc	1584

Thr Ser Gln Val Asp Trp Lys Asp His Phe Leu Tyr Cys Ala Asn Ala			
515	520	525	
ccg ctc acc ttc aag gat ggc aca gcc ctg gcc ctg agc tgc atg gct			1632
Pro Leu Thr Phe Lys Asp Gly Thr Ala Leu Ala Ser Cys Met Ala			
530	535	540	
gac tac ggg gcc cct gtc ttc ccc ttc ctt gcc att ggg ggg tac aaa			1680
Asp Tyr Gly Ala Pro Val Phe Pro Phe Leu Ala Ile Gly Gly Tyr Lys			
545	550	555	560
gga aag gac tat tct gag gca gag gcc ctg atc atg acg ttc tcc ctc			1728
Gly Lys Asp Tyr Ser Glu Ala Glu Ala Leu Ile Met Thr Phe Ser Leu			
565	570	575	
aac aat tac cct gcc ggg gac ccc cgt ctg gcc cag gcc aag ctg tgg			1776
Asn Asn Tyr Pro Ala Gly Asp Pro Arg Leu Ala Gln Ala Lys Leu Trp			
580	585	590	
gag gag gcc ttc tta gag gaa atg cga gcc ttc cag cgt cgg atg gct			1824
Glu Glu Ala Phe Leu Glu Glu Met Arg Ala Phe Gln Arg Arg Met Ala			
595	600	605	
ggc atg ttc cag gtc acg ttc acg gct gag cgc tct ctg gaa gac gag			1872
Gly Met Phe Gln Val Thr Phe Thr Ala Glu Arg Ser Leu Glu Asp Glu			
610	615	620	
atc aat cgc acc aca gct gaa gac ctg ccc atc ttt gcc acc agc tac			1920
Ile Asn Arg Thr Thr Ala Glu Asp Leu Pro Ile Phe Ala Thr Ser Tyr			
625	630	635	640
att gtc ata ttc ctg tac atc tct ctg gcc ctg ggc agc tat tcc agc			1968
Ile Val Ile Phe Leu Tyr Ile Ser Leu Ala Leu Gly Ser Tyr Ser Ser			
645	650	655	
tgg agc cga gtg atg gtg gac tcc aag gcc acg ctg ggc ctc ggc ggg			2016
Trp Ser Arg Val Met Val Asp Ser Lys Ala Thr Leu Gly Leu Gly Gly			
660	665	670	
gtg gcc gtg gtc ctg gga gca gtc atg gct gcc atg ggc ttc ttc tcc			2064
Val Ala Val Val Leu Gly Ala Val Met Ala Ala Met Gly Phe Phe Ser			
675	680	685	
tac ttg ggt atc cgc tcc tcc ctg gtc atc ctg caa gtg gtt cct ttc			2112
Tyr Leu Gly Ile Arg Ser Ser Leu Val Ile Leu Gln Val Val Pro Phe			
690	695	700	
ctg gtg ctg tcc gtg ggg gct gat aac atc ttc atc ttt gtt ctc gag			2160
Leu Val Leu Ser Val Gly Ala Asp Asn Ile Phe Ile Phe Val Leu Glu			
705	710	715	720
tac cag agg ctg ccc cgg agg cct ggg gag cca cga gag gtc cac att			2208
Tyr Gln Arg Leu Pro Arg Arg Pro Gly Glu Pro Arg Glu Val His Ile			
725	730	735	
ggg cga gcc cta ggc agg gtg gct ccc agc atg ctg ttg tgc agc ctc			2256
Gly Arg Ala Leu Gly Arg Val Ala Pro Ser Met Leu Leu Cys Ser Leu			
740	745	750	
tct gag gcc atc tgc ttc cta ggg gcc ctg acc ccc atg cca gct			2304
Ser Glu Ala Ile Cys Phe Phe Leu Gly Ala Leu Thr Pro Met Pro Ala			

755	760	765														
gtg	cgg	acc	ttt	gcc	ctg	acc	tct	ggc	ctt	gca	gtg	atc	ctt	gac	ttc	2352
Val	Arg	Thr	Phe	Ala	Leu	Thr	Ser	Gly	Leu	Ala	Val	Ile	Leu	Asp	Phe	
770				775					780							
ctc	ctg	cag	atg	tca	gcc	ttt	gtg	gcc	ctg	ctc	tcc	ctg	gac	agc	aag	2400
Leu	Leu	Gln	Met	Ser	Ala	Phe	Val	Ala	Leu	Leu	Ser	Leu	Asp	Ser	Lys	
785				790					795					800		
agg	cag	gag	gcc	tcc	cg	ttg	gac	gtc	tgc	tgc	tgt	gtc	aag	ccc	cag	2448
Arg	Gln	Glu	Ala	Ser	Arg	Leu	Asp	Val	Cys	Cys	Cys	Val	Lys	Pro	Gln	
805								810				815				
gag	ctg	ccc	ccg	cct	ggc	cag	gga	gag	ggg	ctc	ctg	ctt	ggc	ttc	ttc	2496
Glu	Leu	Pro	Pro	Gly	Gln	Gly	Glu	Gly	Leu	Leu	Leu	Gly	Phe	Phe		
820							825				830					
caa	aag	gct	tat	gcc	ccc	ttc	ctg	ctg	cac	tgg	atc	act	cga	ggt	gtt	2544
Gln	Lys	Ala	Tyr	Ala	Pro	Phe	Leu	Leu	His	Trp	Ile	Thr	Arg	Gly	Val	
835						840				845						
gtg	ctg	ctg	ctg	ttt	ctc	gcc	ctg	ttc	gga	gtg	agc	ctc	tac	tcc	atg	2592
Val	Leu	Leu	Leu	Phe	Leu	Ala	Leu	Phe	Gly	Val	Ser	Leu	Tyr	Ser	Met	
850						855				860						
tgc	cac	atc	agc	gtg	gga	ctg	gac	cag	gag	ctg	gcc	ctg	ccc	aag	gac	2640
Cys	His	Ile	Ser	Val	Gly	Leu	Asp	Gln	Glu	Leu	Ala	Leu	Pro	Lys	Asp	
865						870				875				880		
tcg	tac	ctg	ctt	gac	tat	ttc	ctc	ttt	ctg	aac	cgc	tac	ttc	gag	gtg	2688
Ser	Tyr	Leu	Leu	Asp	Tyr	Phe	Leu	Phe	Leu	Asn	Arg	Tyr	Phe	Glu	Val	
885						890				895						
ggg	gcc	ccg	gtg	tac	ttt	gtt	acc	acc	ttg	ggc	tac	aac	ttc	tcc	agc	2736
Gly	Ala	Pro	Val	Tyr	Phe	Val	Thr	Thr	Leu	Gly	Tyr	Asn	Phe	Ser	Ser	
900						905				910						
gag	gct	ggg	atg	aat	gcc	atc	tgc	tcc	agt	gca	ggc	tgc	aac	aac	ttc	2784
Glu	Ala	Gly	Met	Asn	Ala	Ile	Cys	Ser	Ser	Ala	Gly	Cys	Asn	Asn	Phe	
915						920				925						
tcc	ttc	acc	cag	aag	atc	cag	tat	gcc	aca	gag	ttc	cct	gag	cag	tct	2832
Ser	Phe	Thr	Gln	Lys	Ile	Gln	Tyr	Ala	Thr	Glu	Phe	Pro	Glu	Gln	Ser	
930						935				940						
tac	ctg	gcc	atc	cct	gcc	tcc	tcc	tgg	gtg	gat	gac	ttc	att	gac	tgg	2880
Tyr	Leu	Ala	Ile	Pro	Ala	Ser	Ser	Trp	Val	Asp	Asp	Phe	Ile	Asp	Trp	
945						950				955				960		
ctg	acc	ccg	tcc	tcc	tgc	tgc	cgc	ctt	tat	ata	tct	ggc	ccc	aat	aag	2928
Leu	Thr	Pro	Ser	Ser	Cys	Cys	Arg	Leu	Tyr	Ile	Ser	Gly	Pro	Asn	Lys	
965						970				975						
gac	aag	ttc	tgc	ccc	tcg	acc	gtc	aac	tct	ctg	aac	tgc	cta	aag	aac	2976
Asp	Lys	Phe	Cys	Pro	Ser	Thr	Val	Asn	Ser	Leu	Asn	Cys	Leu	Lys	Asn	
980						985				990						
tgc	atg	agc	atc	acg	atg	ggc	tct	gtg	agg	ccc	tgc	gtg	gag	cag	ttc	3024
Cys	Met	Ser	Ile	Thr	Met	Gly	Ser	Val	Arg	Pro	Ser	Val	Glu	Gln	Phe	
995						1000				1005						

cat aag tat ctt ccc tgg ttc	ctg aac gac cg	ccc aac atc aaa	3069
His Lys Tyr Leu Pro Trp Phe	Leu Asn Asp Arg Pro	Asn Ile Lys	
1010	1015	1020	
tgt ccc aaa ggc ggc ctg gca	gca tac agc acc tct	gtg aac ttg	3114
Cys Pro Lys Gly Gly Leu Ala	Ala Tyr Ser Thr Ser	Val Asn Leu	
1025	1030	1035	
act tca gat ggc cag gtt tta	gcc tcc agg ttc atg	gcc tat cac	3159
Thr Ser Asp Gly Gln Val Leu	Ala Ser Arg Phe Met	Ala Tyr His	
1040	1045	1050	
aag ccc ctg aaa aac tca cag	gat tac aca gaa gct	ctg cgg gca	3204
Lys Pro Leu Lys Asn Ser Gln	Asp Tyr Thr Glu Ala	Leu Arg Ala	
1055	1060	1065	
gct cga gag ctg gca gcc aac	atc act gct gac ctg	cgg aaa gtg	3249
Ala Arg Glu Leu Ala Ala Asn	Ile Thr Ala Asp Leu	Arg Lys Val	
1070	1075	1080	
cct gga aca gac ccg gct ttt	gag gtc ttc ccc tac	acg atc acc	3294
Pro Gly Thr Asp Pro Ala Phe	Glu Val Phe Pro Tyr	Thr Ile Thr	
1085	1090	1095	
aat gtg ttt tat gag cag tac	ctg acc atc ctc cct	gag ggg ctc	3339
Asn Val Phe Tyr Glu Gln Tyr	Leu Thr Ile Leu Pro	Glu Gly Leu	
1100	1105	1110	
ttc atg ctc agc ctc tgc ctt	gtg ccc acc ttc gct	gtc tcc tgc	3384
Phe Met Leu Ser Leu Cys Leu	Val Pro Thr Phe Ala	Val Ser Cys	
1115	1120	1125	
ctc ctg ctg ggc ctg gac ctg	cgc tcc ggc ctc ctc	aac ctg ctc	3429
Leu Leu Leu Gly Leu Asp Leu	Arg Ser Gly Leu Leu	Asn Leu Leu	
1130	1135	1140	
tcc att gtc atg atc ctc gtg	gac act gtc ggc ttc	atg gcc ctg	3474
Ser Ile Val Met Ile Leu Val	Asp Thr Val Gly Phe	Met Ala Leu	
1145	1150	1155	
tgg gac atc agt tac aat gct	gtg tcc ctc atc aac	ctg gtc tcg	3519
Trp Asp Ile Ser Tyr Asn Ala	Val Ser Leu Ile Asn	Leu Val Ser	
1160	1165	1170	
gcg gtg ggc atg tct gtg gag	ttt gtg tcc cac att	acc cgc tcc	3564
Ala Val Gly Met Ser Val Glu	Phe Val Ser His Ile	Thr Arg Ser	
1175	1180	1185	
ttt gcc atc agc acc aag ccc	acc tgg ctg gag agg	gcc aaa gag	3609
Phe Ala Ile Ser Thr Lys Pro	Thr Trp Leu Glu Arg	Ala Lys Glu	
1190	1195	1200	
gcc acc atc tct atg gga agt	gcg gtg ttt gca ggt	gtg gcc atg	3654
Ala Thr Ile Ser Met Gly Ser	Ala Val Phe Ala Gly	Val Ala Met	
1205	1210	1215	
acc aac ctg cct ggc atc ctt	gtc ctg ggc ctc gcc	aag gcc cag	3699
Thr Asn Leu Pro Gly Ile Leu	Val Leu Gly Leu Ala	Lys Ala Gln	
1220	1225	1230	

ctc att cag atc ttc ttc ttc	cgc ctc aac ctc ctg	atc act ctg	3744
Leu Ile Gln Ile Phe Phe Arg	Leu Asn Leu Leu Ile Thr Leu		
1235	1240	1245	
ctg ggc ctg ctg cat ggc ttg	gtc ttc ctg ccc gtc	atc ctc agc	3789
Leu Gly Leu Leu His Gly Leu Val Phe Leu Pro Val	Ile Leu Ser		
1250	1255	1260	
tac gtg ggg cct gac gtt aac	ccg gct ctg gca ctg	gag cag aag	3834
Tyr Val Gly Pro Asp Val Asn	Pro Ala Leu Ala Leu	Glu Gln Lys	
1265	1270	1275	
cgg gct gag gag gcg gtg gca	gca gtc atg gtg gcc	tct tgc cca	3879
Arg Ala Glu Glu Ala Val Ala	Ala Val Met Val Ala	Ser Cys Pro	
1280	1285	1290	
aat cac ccc tcc cga gtc tcc	aca gct gac aac atc	tat gtc aac	3924
Asn His Pro Ser Arg Val Ser	Thr Ala Asp Asn Ile	Tyr Val Asn	
1295	1300	1305	
cac agc ttt gaa ggt tct atc	aaa ggt gct ggt gcc	atc agc aac	3969
His Ser Phe Glu Gly Ser Ile Lys Gly Ala Gly Ala	Ile Ser Asn		
1310	1315	1320	
ttc ttg ccc aac aat ggg cg	cag ttc tga		3999
Phe Leu Pro Asn Asn Gly Arg	Gln Phe		
1325	1330		

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<212> PRT

<213> Homo sapiens

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Arg Leu Ala Gln Ser Glu Pro Tyr Thr Thr Ile His Gln Pro Gly Tyr		
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Cys Ala Phe Tyr Asp Glu Cys Gly Lys Asn Pro Glu Leu Ser Gly Ser		
35	40	45

Leu Met Thr Leu Ser Asn Val Ser Cys Leu Ser Asn Thr Pro Ala Arg		
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Lys Ile Thr Gly Asp His Leu Ile Leu Leu Gln Lys Ile Cys Pro Arg			
65	70	75	80

Leu Tyr Thr Gly Pro Asn Thr Gln Ala Cys Cys Ser Ala Lys Gln Leu
85 90 95

Val Ser Leu Glu Ala Ser Leu Ser Ile Thr Lys Ala Leu Leu Thr Arg
100 105 110

Cys Pro Ala Cys Ser Asp Asn Phe Val Asn Leu His Cys His Asn Thr
115 120 125

Cys Ser Pro Asn Gln Ser Leu Phe Ile Asn Val Thr Arg Val Ala Gln
130 135 140

Leu Gly Ala Gly Gln Leu Pro Ala Val Val Ala Tyr Glu Ala Phe Tyr
145 150 155 160

Gln His Ser Phe Ala Glu Gln Ser Tyr Asp Ser Cys Ser Arg Val Arg
165 170 175

Val Pro Ala Ala Ala Thr Leu Ala Val Gly Thr Met Cys Gly Val Tyr
180 185 190

Gly Ser Ala Leu Cys Asn Ala Gln Arg Trp Leu Asn Phe Gln Gly Asp
195 200 205

Thr Gly Asn Gly Leu Ala Pro Leu Asp Ile Thr Phe His Leu Leu Glu
210 215 220

Pro Gly Gln Ala Val Gly Ser Gly Ile Gln Pro Leu Asn Glu Gly Val
225 230 235 240

Ala Arg Cys Asn Glu Ser Gln Gly Asp Asp Val Ala Thr Cys Ser Cys
245 250 255

Gln Asp Cys Ala Ala Ser Cys Pro Ala Ile Ala Arg Pro Gln Ala Leu
260 265 270

Asp Ser Thr Phe Tyr Leu Gly Gln Met Pro Gly Ser Leu Val Leu Ile
275 280 285

Ile Ile Leu Cys Ser Val Phe Ala Val Val Thr Ile Leu Leu Val Gly
290 295 300

Phe Arg Val Ala Pro Ala Arg Asp Lys Ser Lys Met Val Asp Pro Lys
305 310 315 320

Lys Gly Thr Ser Leu Ser Asp Lys Leu Ser Phe Ser Thr His Thr Leu

325

330

335

Leu Gly Gln Phe Phe Gln Gly Trp Gly Thr Trp Val Ala Ser Trp Pro
340 345 350

Leu Thr Ile Leu Val Leu Ser Val Ile Pro Val Val Ala Leu Ala Ala
355 360 365

Gly Leu Val Phe Thr Glu Leu Thr Thr Asp Pro Val Glu Leu Trp Ser
370 375 380

Ala Pro Asn Ser Gln Ala Arg Ser Glu Lys Ala Phe His Asp Gln His
385 390 395 400

Phe Gly Pro Phe Phe Arg Thr Asn Gln Val Ile Leu Thr Ala Pro Asn
405 410 415

Arg Ser Ser Tyr Arg Tyr Asp Ser Leu Leu Leu Gly Pro Lys Asn Phe
420 425 430

Ser Gly Ile Leu Asp Leu Asp Leu Leu Leu Glu Leu Leu Glu Leu Gln
435 440 445

Glu Arg Leu Arg His Leu Gln Val Trp Ser Pro Glu Ala Gln Arg Asn
450 455 460

Ile Ser Leu Gln Asp Ile Cys Tyr Ala Pro Leu Asn Pro Asp Asn Thr
465 470 475 480

Ser Leu Tyr Asp Cys Cys Ile Asn Ser Leu Leu Gln Tyr Phe Gln Asn
485 490 495

Asn Arg Thr Leu Leu Leu Leu Thr Ala Asn Gln Thr Leu Met Gly Gln
500 505 510

Thr Ser Gln Val Asp Trp Lys Asp His Phe Leu Tyr Cys Ala Asn Ala
515 520 525

Pro Leu Thr Phe Lys Asp Gly Thr Ala Leu Ala Leu Ser Cys Met Ala
530 535 540

Asp Tyr Gly Ala Pro Val Phe Pro Phe Leu Ala Ile Gly Gly Tyr Lys
545 550 555 560

Gly Lys Asp Tyr Ser Glu Ala Glu Ala Leu Ile Met Thr Phe Ser Leu
565 570 575

Asn Asn Tyr Pro Ala Gly Asp Pro Arg Leu Ala Gln Ala Lys Leu Trp
580 585 590

Glu Glu Ala Phe Leu Glu Glu Met Arg Ala Phe Gln Arg Arg Met Ala
595 600 605

Gly Met Phe Gln Val Thr Phe Thr Ala Glu Arg Ser Leu Glu Asp Glu
610 615 620

Ile Asn Arg Thr Thr Ala Glu Asp Leu Pro Ile Phe Ala Thr Ser Tyr
625 630 635 640

Ile Val Ile Phe Leu Tyr Ile Ser Leu Ala Leu Gly Ser Tyr Ser Ser
645 650 655

Trp Ser Arg Val Met Val Asp Ser Lys Ala Thr Leu Gly Leu Gly Gly
660 665 670

Val Ala Val Val Leu Gly Ala Val Met Ala Ala Met Gly Phe Phe Ser
675 680 685

Tyr Leu Gly Ile Arg Ser Ser Leu Val Ile Leu Gln Val Val Pro Phe
690 695 700

Leu Val Leu Ser Val Gly Ala Asp Asn Ile Phe Ile Phe Val Leu Glu
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Tyr Gln Arg Leu Pro Arg Arg Pro Gly Glu Pro Arg Glu Val His Ile
725 730 735

Gly Arg Ala Leu Gly Arg Val Ala Pro Ser Met Leu Leu Cys Ser Leu
740 745 750

Ser Glu Ala Ile Cys Phe Phe Leu Gly Ala Leu Thr Pro Met Pro Ala
755 760 765

Val Arg Thr Phe Ala Leu Thr Ser Gly Leu Ala Val Ile Leu Asp Phe
770 775 780

Leu Leu Gln Met Ser Ala Phe Val Ala Leu Leu Ser Leu Asp Ser Lys
785 790 795 800

Arg Gln Glu Ala Ser Arg Leu Asp Val Cys Cys Cys Val Lys Pro Gln
805 810. 815

Glu Leu Pro Pro Pro Gly Gln Gly Glu Gly Leu Leu Leu Gly Phe Phe
820 825 830

Gln Lys Ala Tyr Ala Pro Phe Leu Leu His Trp Ile Thr Arg Gly Val
835 840 845

Val Leu Leu Leu Phe Leu Ala Leu Phe Gly Val Ser Leu Tyr Ser Met
850 855 860

Cys His Ile Ser Val Gly Leu Asp Gln Glu Leu Ala Leu Pro Lys Asp
865 870 875 880

Ser Tyr Leu Leu Asp Tyr Phe Leu Phe Leu Asn Arg Tyr Phe Glu Val
885 890 895

Gly Ala Pro Val Tyr Phe Val Thr Thr Leu Gly Tyr Asn Phe Ser Ser
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Glu Ala Gly Met Asn Ala Ile Cys Ser Ser Ala Gly Cys Asn Asn Phe
915 920 925

Ser Phe Thr Gln Lys Ile Gln Tyr Ala Thr Glu Phe Pro Glu Gln Ser
930 935 940

Tyr Leu Ala Ile Pro Ala Ser Ser Trp Val Asp Asp Phe Ile Asp Trp
945 950 955 960

Leu Thr Pro Ser Ser Cys Cys Arg Leu Tyr Ile Ser Gly Pro Asn Lys
965 970 975

Asp Lys Phe Cys Pro Ser Thr Val Asn Ser Leu Asn Cys Leu Lys Asn
980 985 990

Cys Met Ser Ile Thr Met Gly Ser Val Arg Pro Ser Val Glu Gln Phe
995 1000 1005

His Lys Tyr Leu Pro Trp Phe Leu Asn Asp Arg Pro Asn Ile Lys
1010 1015 1020

Cys Pro Lys Gly Gly Leu Ala Ala Tyr Ser Thr Ser Val Asn Leu
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Thr Ser Asp Gly Gln Val Leu Ala Ser Arg Phe Met Ala Tyr His
1040 1045 1050

Lys Pro Leu Lys Asn Ser Gln Asp Tyr Thr Glu Ala Leu Arg Ala
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Ala Arg Glu Leu Ala Ala Asn Ile Thr Ala Asp Leu Arg Lys Val
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Pro Gly Thr Asp Pro Ala Phe Glu Val Phe Pro Tyr Thr Ile Thr
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Asn Val Phe Tyr Glu Gln Tyr Leu Thr Ile Leu Pro Glu Gly Leu
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Phe Met Leu Ser Leu Cys Leu Val Pro Thr Phe Ala Val Ser Cys
1115 1120 1125

Leu Leu Leu Gly Leu Asp Leu Arg Ser Gly Leu Leu Asn Leu Leu
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1145 1150 1155

Trp Asp Ile Ser Tyr Asn Ala Val Ser Leu Ile Asn Leu Val Ser
1160 1165 1170

Ala Val Gly Met Ser Val Glu Phe Val Ser His Ile Thr Arg Ser
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Phe Ala Ile Ser Thr Lys Pro Thr Trp Leu Glu Arg Ala Lys Glu
1190 1195 1200

Ala Thr Ile Ser Met Gly Ser Ala Val Phe Ala Gly Val Ala Met
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Thr Asn Leu Pro Gly Ile Leu Val Leu Gly Leu Ala Lys Ala Gln
1220 1225 1230

Leu Ile Gln Ile Phe Phe Phe Arg Leu Asn Leu Leu Ile Thr Leu
1235 1240 1245

Leu Gly Leu Leu His Gly Leu Val Phe Leu Pro Val Ile Leu Ser
1250 1255 1260

Tyr Val Gly Pro Asp Val Asn Pro Ala Leu Ala Leu Glu Gln Lys
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Arg Ala Glu Glu Ala Val Ala Ala Val Met Val Ala Ser Cys Pro

1280

1285

1290

Asn His Pro Ser Arg Val Ser Thr Ala Asp Asn Ile Tyr Val Asn
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<213> Rattus sp.

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<212> DNA
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ttymgnynatn ayytnynatn hacnytnytg ngnynytngt nttyytnccn	3780
gtngtnytnw sntayytngg nccngaygtn aaycargcny tngtncarga rgaraarytn	3840
gcnwsnsgarg cngcngtngc nccngarccn wsntgyccnc artayccnws nccngcngay	3900
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tcg gcc cag ggt gag ctc tac aca ccc act cac aaa gct ggc ttc tgc	96
Ser Ala Gln Gly Glu Leu Tyr Thr Pro Thr His Lys Ala Gly Phe Cys	
20 25 30	
acc ttt tat gaa gag tgt ggg aag aac cca gag ctt tct gga ggc ctc	144
Thr Phe Tyr Glu Glu Cys Gly Lys Asn Pro Glu Leu Ser Gly Gly Leu	
35 40 45	
aca tca cta tcc aat atc tcc tgc ttg tct aat acc cca gcc cgccat	192
Thr Ser Leu Ser Asn Ile Ser Cys Leu Ser Asn Thr Pro Ala Arg His	
50 55 60	
gtc aca ggt gac cac ctg gct ctt ctc cag cgccgtc tgt ccc cgcccta	240
Val Thr Gly Asp His Leu Ala Leu Gln Arg Val Cys Pro Arg Leu	
65 70 75 80	
tac aat ggc ccc aat gac acc tat gcc tgt tgc tct acc aag cag ctg	288
Tyr Asn Gly Pro Asn Asp Thr Tyr Ala Cys Cys Ser Thr Lys Gln Leu	
85 90 95	
gtg tca tta gac agt agc ctg tct atc acc aag gcc ctc ctt aca cgcc	336
Val Ser Leu Asp Ser Ser Leu Ser Ile Thr Lys Ala Leu Leu Thr Arg	
100 105 110	

tgc ccg gca tgc tct gaa aat ttt gtg agc ata cac tgt cat aat acc		384
Cys Pro Ala Cys Ser Glu Asn Phe Val Ser Ile His Cys His Asn Thr		
115 120 125		
tgc agc cct gac cag agc ctc ttc atc aat gtt act cgc gtg gtt cag		432
Cys Ser Pro Asp Gln Ser Leu Phe Ile Asn Val Thr Arg Val Val Gln		
130 135 140		
cgg gac cct gga cag ctt cct gct gtg gtg gcc tat gag gcc ttt tat		480
Arg Asp Pro Gly Gln Leu Pro Ala Val Val Ala Tyr Glu Ala Phe Tyr		
145 150 155 160		
caa cgc agt ttt gca gag aag gcc tat gag tcc tgt agc cgg gtg cgc		528
Gln Arg Ser Phe Ala Glu Lys Ala Tyr Glu Ser Cys Ser Arg Val Arg		
165 170 175		
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Ile Pro Ala Ala Ser Leu Ala Val Gly Ser Met Cys Gly Val Tyr		
180 185 190		
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Gly Ser Ala Leu Cys Asn Ala Gln Arg Trp Leu Asn Phe Gln Gly Asp		
195 200 205		
aca ggg aat ggc ctg gct ccg ctg gac atc acc ttc cac ctc ttg gag		672
Thr Gly Asn Gly Leu Ala Pro Leu Asp Ile Thr Phe His Leu Leu Glu		
210 215 220		
cct ggc cag gcc ctg gca gat ggg atg aag cca ctg gat ggg aag atc		720
Pro Gly Gln Ala Leu Ala Asp Gly Met Lys Pro Leu Asp Gly Lys Ile		
225 230 235 240		
aca ccc tgc aat gag tcc cag ggt gaa gac tcg gca gcc tgt tcc tgc		768
Thr Pro Cys Asn Glu Ser Gln Gly Glu Asp Ser Ala Ala Cys Ser Cys		
245 250 255		
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Gln Asp Cys Ala Ala Ser Cys Pro Val Ile Pro Pro Pro Ala Leu		
260 265 270		
cgc cct tct ttc tac atg ggt cga atg cca ggc tgg ctg gct ctc atc		864
Arg Pro Ser Phe Tyr Met Gly Arg Met Pro Gly Trp Leu Ala Leu Ile		
275 280 285		
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Ile Ile Phe Thr Ala Val Phe Val Leu Leu Ser Val Val Leu Val Tyr		
290 295 300		
ctc cga gtg gct tcc aac agg aac aag aac aag aca gca ggc tcc cag		960
Leu Arg Val Ala Ser Asn Arg Asn Lys Asn Lys Thr Ala Gly Ser Gln		
305 310 315 320		
gaa gcc ccc aac ctc cct cgt aag cgc aga ttc tca cct cac act gtc		1008
Glu Ala Pro Asn Leu Pro Arg Lys Arg Arg Phe Ser Pro His Thr Val		
325 330 335		
ctt ggc cgg ttc ttc gag agc tgg gga aca agg gtg gcc tca tgg cca		1056
Leu Gly Arg Phe Phe Glu Ser Trp Gly Thr Arg Val Ala Ser Trp Pro		
340 345 350		

ctc act gtc ttg gca ctg tcc ttc ata gtt gtg ata gcc ttg tca gta		1104
Leu Thr Val Leu Ala Leu Ser Phe Ile Val Val Ile Ala Leu Ser Val		
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ggc ctg acc ttt ata gaa ctc acc aca gac cct gtg gaa ctg tgg tcg		1152
Gly Leu Thr Phe Ile Glu Leu Thr Thr Asp Pro Val Glu Leu Trp Ser		
370	375	380
gcc cct aaa agc caa gcc cg ^g aaa gaa aag gct ttc cat gac gag cat		1200
Ala Pro Lys Ser Gln Ala Arg Lys Glu Lys Ala Phe His Asp Glu His		
385	390	395
400		
ttt ggc ccc ttc ttc cga acc aac cag att ttt gtg aca gct aag aac		1248
Phe Gly Pro Phe Phe Arg Thr Asn Gln Ile Phe Val Thr Ala Lys Asn		
405	410	415
agg tcc agc tac aag tac gac tcc ctg ctg cta ggg ccc aag aac ttc		1296
Arg Ser Ser Tyr Lys Tyr Asp Ser Leu Leu Leu Gly Pro Lys Asn Phe		
420	425	430
agt ggg atc cta tcc ctg gac ttg ctg cag gag ctg ttg gag cta cag		1344
Ser Gly Ile Leu Ser Leu Asp Leu Leu Gln Glu Leu Leu Glu Leu Gln		
435	440	445
gag aga ctt cga cac ctg caa gtg tgg tcc cat gag gca cag cgc aac		1392
Glu Arg Leu Arg His Leu Gln Val Trp Ser His Glu Ala Gln Arg Asn		
450	455	460
atc tcc ctc cag gac atc tgc tat gct ccc ctc aac ccg cat aac acc		1440
Ile Ser Leu Gln Asp Ile Cys Tyr Ala Pro Leu Asn Pro His Asn Thr		
465	470	475
480		
agc ctc act gac tgc tgt gtc aac agc ctc ctt caa tac ttc cag aac		1488
Ser Leu Thr Asp Cys Cys Val Asn Ser Leu Leu Gln Tyr Phe Gln Asn		
485	490	495
aac cac aca ctc ctg ctc aca gcc aat cag act ctg aat ggc cag		1536
Asn His Thr Leu Leu Leu Leu Thr Ala Asn Gln Thr Leu Asn Gly Gln		
500	505	510
acc tcc ctg gtg gac tgg aag gac cat ttc ctc tac tgt gcc aat gcc		1584
Thr Ser Leu Val Asp Trp Lys Asp His Phe Leu Tyr Cys Ala Asn Ala		
515	520	525
cct ctc acg tac aaa gat ggc aca gcc ctg gcc ctg agc tgc ata gct		1632
Pro Leu Thr Tyr Lys Asp Gly Thr Ala Leu Ala Leu Ser Cys Ile Ala		
530	535	540
gac tac ggg gca cct gtc ttc ccc ttc ctt gct gtt ggg ggc tac caa		1680
Asp Tyr Gly Ala Pro Val Phe Pro Phe Leu Ala Val Gly Gly Tyr Gln		
545	550	555
560		
ggg acg gac tac tcg gag gca gaa gcc ctg atc ata acc ttc tct atc		1728
Gly Thr Asp Tyr Ser Glu Ala Glu Ala Leu Ile Ile Thr Phe Ser Ile		
565	570	575
aat aac tac ccc gct gat gat ccc cgc atg gcc cac gcc aag ctc tgg		1776
Asn Asn Tyr Pro Ala Asp Asp Pro Arg Met Ala His Ala Lys Leu Trp		
580	585	590
gag gag gct ttc ttg aag gaa atg caa tcc ttc cag aga agc aca gct		1824

Glu	Glu	Ala	Phe	Leu	Lys	Glu	Met	Gln	Ser	Phe	Gln	Arg	Ser	Thr	Ala		
595						600						605					
gac aag ttc cag att gcg ttc tca gct gag cgt tct ctg gag gac gag															1872		
Asp	Lys	Phe	Gln	Ile	Ala	Phe	Ser	Ala	Glu	Arg	Ser	Leu	Glu	Asp	Glu		
610						615						620					
atc aat cgc act acc atc cag gac ctg cct gtc ttt gcc atc agc tac															1920		
Ile	Asn	Arg	Thr	Thr	Ile	Gln	Asp	Leu	Pro	Val	Phe	Ala	Ile	Ser	Tyr		
625						630						635			640		
ctt atc gtc ttc ctg tac atc tcc ctg gcc ctg ggc agc tac tcc aga															1968		
Leu	Ile	Val	Phe	Leu	Tyr	Ile	Ser	Leu	Ala	Leu	Gly	Ser	Tyr	Ser	Arg		
645						650						655					
tgg agc cga gtt gcg gtg gat tcc aag gct act ctg ggc cta ggt ggg															2016		
Trp	Ser	Arg	Val	Ala	Val	Asp	Ser	Lys	Ala	Thr	Leu	Gly	Leu	Gly	Gly		
660						665						670					
gtg gct gtt gtg ctg gga gca gtc gtc gct gcc atg ggc ttc tac tcc															2064		
Val	Ala	Val	Val	Leu	Gly	Ala	Val	Val	Ala	Ala	Met	Gly	Phe	Tyr	Ser		
675						680						685					
tac ctg ggt gtc ccc tcc tct ctg gtc atc att caa gtg gta cct ttc															2112		
Tyr	Leu	Gly	Val	Pro	Ser	Ser	Leu	Val	Ile	Ile	Gln	Val	Val	Pro	Phe		
690						695						700					
ctg gtg ctg gct gtg gga gct gac aac atc ttc atc ttt gtt ctt gag															2160		
Leu	Val	Leu	Ala	Val	Gly	Ala	Asp	Asn	Ile	Phe	Ile	Phe	Val	Leu	Glu		
705						710						715			720		
tac cag agg ctg cct agg atg ccc ggg gag cag cga gag gct cac att															2208		
Tyr	Gln	Arg	Leu	Pro	Arg	Met	Pro	Gly	Glu	Gln	Arg	Glu	Ala	His	Ile		
725						730						735					
ggc cgc acc ctg ggt agt gtg gcc ccc agc atg ctg ctg tgc agc ctc															2256		
Gly	Arg	Thr	Leu	Gly	Ser	Val	Ala	Pro	Ser	Met	Leu	Leu	Cys	Ser	Leu		
740						745						750					
tct gag gcc atc tgc ttc ttt cta ggg gcc ctg acc tcc atg cca gct															2304		
Ser	Glu	Ala	Ile	Cys	Phe	Phe	Leu	Gly	Ala	Leu	Thr	Ser	Met	Pro	Ala		
755						760						765					
gtg agg acc ttt gcc ttg acc tct ggc tta gca atc atc ttt gac ttc															2352		
Val	Arg	Thr	Phe	Ala	Leu	Thr	Ser	Gly	Leu	Ala	Ile	Ile	Phe	Asp	Phe		
770						775						780					
ctg ctc cag atg aca gcc ttt gtg gcc ctg ctc tcc ctg gat agc aag															2400		
Leu	Leu	Gln	Met	Thr	Ala	Phe	Val	Ala	Leu	Leu	Ser	Leu	Asp	Ser	Lys		
785						790						795			800		
agg cag gag gcc tct cgc ccc gac gtc gtg tgc tgc ttt tca agc cga															2448		
Arg	Gln	Glu	Ala	Ser	Arg	Pro	Asp	Val	Val	Cys	Cys	Phe	Ser	Ser	Arg		
805						810						815					
aat ctg ccc cca ccg aaa caa aaa gaa ggc ctc tta ctt tgc ttc ttc															2496		
Asn	Leu	Pro	Pro	Pro	Lys	Gln	Lys	Glu	Gly	Leu	Leu	Cys	Phe	Phe			
820						825						830					
cgc aag ata tac act ccc ttc ctg ctg cac aga ttc atc cgc cct gtt															2544		
Arg	Lys	Ile	Tyr	Thr	Pro	Phe	Leu	Leu	His	Arg	Phe	Ile	Arg	Pro	Val		

835	840	845	
gtg ctg ctg ctc ttt ctg gtc ctg ttt gga gca aac ctc tac tta atg Val Leu Leu Leu Phe Leu Val Leu Phe Gly Ala Asn Leu Tyr Leu Met 850	855	860	2592
tgc aac atc agc gtg ggg ctg gac cag gat ctg gct ctg ccc aag gat Cys Asn Ile Ser Val Gly Leu Asp Gln Asp Leu Ala Leu Pro Lys Asp 865	870	875	2640
tcc tac ctg ata gac tac ttc ctc ttt ctg aac cgg tac ttg gaa gtg Ser Tyr Leu Ile Asp Tyr Phe Leu Asn Arg Tyr Leu Glu Val 885	890	895	2688
ggg cct cca gtg tac ttt gac acc acc tca ggc tac aac ttt tcc acc Gly Pro Pro Val Tyr Phe Asp Thr Thr Ser Gly Tyr Asn Phe Ser Thr 900	905	910	2736
gag gca ggc atg aac gcc att tgc tct agt gca ggc tgt gag agc ttc Glu Ala Gly Met Asn Ala Ile Cys Ser Ser Ala Gly Cys Glu Ser Phe 915	920	925	2784
tcc cta acc cag aaa atc cag tat gcc agt gaa ttc cct aat cag tct Ser Leu Thr Gln Lys Ile Gln Tyr Ala Ser Glu Phe Pro Asn Gln Ser 930	935	940	2832
tat gtg gct att gct gca tcc tcc tgg gta gat gac ttc atc gac tgg Tyr Val Ala Ile Ala Ser Ser Trp Val Asp Asp Phe Ile Asp Trp 945	950	955	2880
ctg acc cca tcc tcc tcc tgc tgc cgc att tat acc cgt ggc ccc cat Leu Thr Pro Ser Ser Cys Cys Arg Ile Tyr Thr Arg Gly Pro His 965	970	975	2928
aaa gat gag ttc tgt ccc tca acg gat act tcc ttc aac tgt ctc aaa Lys Asp Glu Phe Cys Pro Ser Thr Asp Thr Ser Phe Asn Cys Leu Lys 980	985	990	2976
aac tgc atg aac cgc act ctg ggt ccc gtg aga ccc aca aca gaa cag Asn Cys Met Asn Arg Thr Leu Gly Pro Val Arg Pro Thr Thr Glu Gln 995	1000	1005	3024
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aga tgt cct aaa ggg ggc cta gca gcg tat aga acc tct gtg aat Arg Cys Pro Lys Gly Gly Leu Ala Ala Tyr Arg Thr Ser Val Asn 1025	1030	1035	3114
ttg agc tca gat ggc cag att ata gcc tcc cag ttc atg gcc tac Leu Ser Ser Asp Gly Gln Ile Ile Ala Ser Gln Phe Met Ala Tyr 1040	1045	1050	3159
cac aag ccc tta cgg aac tca cag gac ttt aca gaa gct ctc cgg His Lys Pro Leu Arg Asn Ser Gln Asp Phe Thr Glu Ala Leu Arg 1055	1060	1065	3204
gca tcc cggttg cta gca gcc aac atc aca gct gaa cta cgg aag Ala Ser Arg Leu Leu Ala Ala Asn Ile Thr Ala Glu Leu Arg Lys 1070	1075	1080	3249

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Val	Pro	Gly	Thr	Asp	Pro	Asn	Phe	Glu	Val	Phe	Pro	Tyr	Thr	Ile	
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Ser	Asn	Val	Phe	Tyr	Gln	Gln	Tyr	Leu	Thr	Val	Leu	Pro	Glu	Gly	
1100					1105						1110				
atc	ttc	act	ctt	gct	ctc	tgc	ttc	gtg	ccc	acc	ttt	gtg	gtc	tgc	3384
Ile	Phe	Thr	Leu	Ala	Leu	Cys	Phe	Val	Pro	Thr	Phe	Val	Val	Cys	
1115					1120						1125				
tac	ctc	cta	ctg	ggc	ctg	gac	ata	cgc	tca	ggc	atc	ctc	aac	ctg	3429
Tyr	Leu	Leu	Gly	Leu	Asp	Ile	Arg	Ser	Gly	Ile	Leu	Asn	Leu		
1130					1135						1140				
ctc	tcc	atc	att	atg	atc	ctc	gtg	gac	acc	atc	ggc	ctc	atg	gct	3474
Leu	Ser	Ile	Ile	Met	Ile	Leu	Val	Asp	Thr	Ile	Gly	Leu	Met	Ala	
1145					1150						1155				
gtg	tgg	ggt	atc	agc	tac	aat	gct	gtg	tcc	ctc	atc	aac	ctt	gtc	3519
Val	Trp	Gly	Ile	Ser	Tyr	Asn	Ala	Val	Ser	Leu	Ile	Asn	Leu	Val	
1160					1165						1170				
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Thr	Ala	Val	Gly	Met	Ser	Val	Glu	Phe	Val	Ser	His	Ile	Thr	Arg	
1175					1180						1185				
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Ser	Phe	Ala	Val	Ser	Thr	Lys	Pro	Thr	Arg	Leu	Glu	Arg	Ala	Lys	
1190					1195						1200				
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Asp	Ala	Thr	Ile	Phe	Met	Gly	Ser	Ala	Val	Phe	Ala	Gly	Val	Ala	
1205					1210						1215				
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Met	Thr	Asn	Phe	Pro	Gly	Ile	Leu	Ile	Leu	Gly	Phe	Ala	Gln	Ala	
1220					1225						1230				
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Gln	Leu	Ile	Gln	Ile	Phe	Phe	Phe	Arg	Leu	Asn	Leu	Leu	Ile	Thr	
1235					1240						1245				
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Leu	Leu	Gly	Leu	Leu	His	Gly	Leu	Val	Phe	Leu	Pro	Val	Val	Leu	
1250					1255						1260				
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Ser	Tyr	Leu	Gly	Pro	Asp	Val	Asn	Gln	Ala	Leu	Val	Leu	Glu	Glu	
1265					1270						1275				
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Lys	Leu	Ala	Thr	Glu	Ala	Ala	Met	Val	Ser	Glu	Pro	Ser	Cys	Pro	
1280					1285						1290				
cag	tac	ccc	ttc	ccg	gct	gat	gca	aac	acc	agt	gac	tat	gtt	aac	3924
Gln	Tyr	Pro	Phe	Pro	Ala	Asp	Ala	Asn	Thr	Ser	Asp	Tyr	Val	Asn	
1295					1300						1305				

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Tyr Gly Phe Asn Pro Glu Phe Ile Pro Glu Ile Asn Ala Ala Ser
1310 1315 1320

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Thr Phe Tyr Glu Glu Cys Gly Lys Asn Pro Glu Leu Ser Gly Gly Leu
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Thr Ser Leu Ser Asn Ile Ser Cys Leu Ser Asn Thr Pro Ala Arg His
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Val Thr Gly Asp His Leu Ala Leu Leu Gln Arg Val Cys Pro Arg Leu
65 70 75 80

Tyr Asn Gly Pro Asn Asp Thr Tyr Ala Cys Cys Ser Thr Lys Gln Leu
85 90 95

Val Ser Leu Asp Ser Ser Leu Ser Ile Thr Lys Ala Leu Leu Thr Arg
100 105 110

Cys Pro Ala Cys Ser Glu Asn Phe Val Ser Ile His Cys His Asn Thr
115 120 125

Cys Ser Pro Asp Gln Ser Leu Phe Ile Asn Val Thr Arg Val Val Gln
130 135 140

Arg Asp Pro Gly Gln Leu Pro Ala Val Val Ala Tyr Glu Ala Phe Tyr
145 150 155 160

Gln Arg Ser Phe Ala Glu Lys Ala Tyr Glu Ser Cys Ser Arg Val Arg
165 170 175

Ile Pro Ala Ala Ala Ser Leu Ala Val Gly Ser Met Cys Gly Val Tyr
180 185 190

Gly Ser Ala Leu Cys Asn Ala Gln Arg Trp Leu Asn Phe Gln Gly Asp
195 200 205

Thr Gly Asn Gly Leu Ala Pro Leu Asp Ile Thr Phe His Leu Leu Glu
210 215 220

Pro Gly Gln Ala Leu Ala Asp Gly Met Lys Pro Leu Asp Gly Lys Ile
225 230 235 240

Thr Pro Cys Asn Glu Ser Gln Gly Glu Asp Ser Ala Ala Cys Ser Cys
245 250 255

Gln Asp Cys Ala Ala Ser Cys Pro Val Ile Pro Pro Pro Ala Leu
260 265 270

Arg Pro Ser Phe Tyr Met Gly Arg Met Pro Gly Trp Leu Ala Leu Ile
275 280 285

Ile Ile Phe Thr Ala Val Phe Val Leu Leu Ser Val Val Leu Val Tyr
290 295 300

Leu Arg Val Ala Ser Asn Arg Asn Lys Asn Lys Thr Ala Gly Ser Gln
305 310 315 320

Glu Ala Pro Asn Leu Pro Arg Lys Arg Arg Phe Ser Pro His Thr Val
325 330 335

Leu Gly Arg Phe Phe Glu Ser Trp Gly Thr Arg Val Ala Ser Trp Pro
340 345 350

Leu Thr Val Leu Ala Leu Ser Phe Ile Val Val Ile Ala Leu Ser Val
355 360 365

Gly Leu Thr Phe Ile Glu Leu Thr Thr Asp Pro Val Glu Leu Trp Ser
370 375 380

Ala Pro Lys Ser Gln Ala Arg Lys Glu Lys Ala Phe His Asp Glu His
385 390 395 400

Phe Gly Pro Phe Phe Arg Thr Asn Gln Ile Phe Val Thr Ala Lys Asn

405

410

415

Arg Ser Ser Tyr Lys Tyr Asp Ser Leu Leu Leu Gly Pro Lys Asn Phe
420 425 430

Ser Gly Ile Leu Ser Leu Asp Leu Leu Gln Glu Leu Leu Glu Leu Gln
435 440 445

Glu Arg Leu Arg His Leu Gln Val Trp Ser His Glu Ala Gln Arg Asn
450 455 460

Ile Ser Leu Gln Asp Ile Cys Tyr Ala Pro Leu Asn Pro His Asn Thr
465 470 475 480

Ser Leu Thr Asp Cys Cys Val Asn Ser Leu Leu Gln Tyr Phe Gln Asn
485 490 495

Asn His Thr Leu Leu Leu Leu Thr Ala Asn Gln Thr Leu Asn Gly Gln
500 505 510

Thr Ser Leu Val Asp Trp Lys Asp His Phe Leu Tyr Cys Ala Asn Ala
515 520 525

Pro Leu Thr Tyr Lys Asp Gly Thr Ala Leu Ala Leu Ser Cys Ile Ala
530 535 540

Asp Tyr Gly Ala Pro Val Phe Pro Phe Leu Ala Val Gly Gly Tyr Gln
545 550 555 560

Gly Thr Asp Tyr Ser Glu Ala Glu Ala Leu Ile Ile Thr Phe Ser Ile
565 570 575

Asn Asn Tyr Pro Ala Asp Asp Pro Arg Met Ala His Ala Lys Leu Trp
580 585 590

Glu Glu Ala Phe Leu Lys Glu Met Gln Ser Phe Gln Arg Ser Thr Ala
595 600 605

Asp Lys Phe Gln Ile Ala Phe Ser Ala Glu Arg Ser Leu Glu Asp Glu
610 615 620

Ile Asn Arg Thr Thr Ile Gln Asp Leu Pro Val Phe Ala Ile Ser Tyr
625 630 635 640

Leu Ile Val Phe Leu Tyr Ile Ser Leu Ala Leu Gly Ser Tyr Ser Arg
645 650 655

Trp Ser Arg Val Ala Val Asp Ser Lys Ala Thr Leu Gly Leu Gly Gly
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Val Ala Val Val Leu Gly Ala Val Val Ala Ala Met Gly Phe Tyr Ser
675 680 685

Tyr Leu Gly Val Pro Ser Ser Leu Val Ile Ile Gln Val Val Pro Phe
690 695 700

Leu Val Leu Ala Val Gly Ala Asp Asn Ile Phe Ile Phe Val Leu Glu
705 710 715 720

Tyr Gln Arg Leu Pro Arg Met Pro Gly Glu Gln Arg Glu Ala His Ile
725 730 735

Gly Arg Thr Leu Gly Ser Val Ala Pro Ser Met Leu Leu Cys Ser Leu
740 745 750

Ser Glu Ala Ile Cys Phe Phe Leu Gly Ala Leu Thr Ser Met Pro Ala
755 760 765

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785 790 795 800

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805 810 815

Asn Leu Pro Pro Pro Lys Gln Lys Glu Gly Leu Leu Leu Cys Phe Phe
820 825 830

Arg Lys Ile Tyr Thr Pro Phe Leu Leu His Arg Phe Ile Arg Pro Val
835 840 845

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850 855 860

Cys Asn Ile Ser Val Gly Leu Asp Gln Asp Leu Ala Leu Pro Lys Asp
865 870 875 880

Ser Tyr Leu Ile Asp Tyr Phe Leu Phe Leu Asn Arg Tyr Leu Glu Val
885 890 895

Gly Pro Pro Val Tyr Phe Asp Thr Thr Ser Gly Tyr Asn Phe Ser Thr
900 905 910

Glu Ala Gly Met Asn Ala Ile Cys Ser Ser Ala Gly Cys Glu Ser Phe
915 920 925

Ser Leu Thr Gln Lys Ile Gln Tyr Ala Ser Glu Phe Pro Asn Gln Ser
930 935 940

Tyr Val Ala Ile Ala Ala Ser Ser Trp Val Asp Asp Phe Ile Asp Trp
945 950 955 960

Leu Thr Pro Ser Ser Cys Cys Arg Ile Tyr Thr Arg Gly Pro His
965 970 975

Lys Asp Glu Phe Cys Pro Ser Thr Asp Thr Ser Phe Asn Cys Leu Lys
980 985 990

Asn Cys Met Asn Arg Thr Leu Gly Pro Val Arg Pro Thr Thr Glu Gln
995 1000 1005

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Ala Glu Ala Gly Leu Arg Gly Trp Leu Leu Trp Ala Leu Leu Leu Arg
5 10 15

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Leu Ala Gln Ser Glu Pro Tyr Thr Thr Ile His Gln Pro Gly Tyr Cys
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gcc ttc tat gac gaa tgt ggg aag aac cca gag ctg tct gga agc ctc 203
Ala Phe Tyr Asp Glu Cys Gly Lys Asn Pro Glu Leu Ser Gly Ser Leu
35 40 45

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Met Thr Leu Ser Asn Val Ser Cys Leu Ser Asn Thr Pro Ala Arg Lys			
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Ile Thr Gly Asp His Leu Ile Leu Gln Lys Ile Cys Pro Arg Leu			
70	75	80	
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Tyr Thr Gly Pro Asn Thr Gln Ala Cys Cys Ser Ala Lys Gln Leu Val			
85	90	95	
tca ctg gaa gcg agt ctg tcg atc acc aag gcc ctc ctc acc cgc tgc			395
Ser Leu Glu Ala Ser Leu Ser Ile Thr Lys Ala Leu Leu Thr Arg Cys			
100	105	110	
cca gcc tgc tct gac aat ttt gtg aac ctg cac tgc cac aac acg tgc			443
Pro Ala Cys Ser Asp Asn Phe Val Asn Leu His Cys His Asn Thr Cys			
115	120	125	
agc ccc aat cag agc ctc ttc atc aat gtg acc cgc gtg gcc cag cta			491
Ser Pro Asn Gln Ser Leu Phe Ile Asn Val Thr Arg Val Ala Gln Leu			
130	135	140	145
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Gly Ala Gly Gln Leu Pro Ala Val Val Ala Tyr Glu Ala Phe Tyr Gln			
150	155	160	
cat agc ttt gcc gag cag agc tat gac tcc tgc agc cgt gtg cgc gtc			587
His Ser Phe Ala Glu Gln Ser Tyr Asp Ser Cys Ser Arg Val Arg Val			
165	170	175	
cct gca gct gcc acg ctg gct gtg ggc acc atg tgt ggc gtg tat ggc			635
Pro Ala Ala Ala Thr Leu Ala Val Gly Thr Met Cys Gly Val Tyr Gly			
180	185	190	
tct gcc ctt tgc aat gcc cag cgc tgg ctc aac ttc cag gga gac aca			683
Ser Ala Leu Cys Asn Ala Gln Arg Trp Leu Asn Phe Gln Gly Asp Thr			
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Gly Asn Gly Leu Ala Pro Leu Asp Ile Thr Phe His Leu Leu Glu Pro			
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Gly Gln Ala Val Gly Ser Gly Ile Gln Pro Leu Asn Glu Gly Val Ala			
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cgt tgc aat gag tcc caa ggt gac gac gtg gcg acc tgc tcc tgc caa			827
Arg Cys Asn Glu Ser Gln Gly Asp Asp Val Ala Thr Cys Ser Cys Gln			
245	250	255	
gac tgt gct gca tcc tgt cct gcc ata gcc cgc ccc cag gcc ctc gac			875
Asp Cys Ala Ala Ser Cys Pro Ala Ile Ala Arg Pro Gln Ala Leu Asp			
260	265	270	
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Ser Thr Phe Tyr Leu Gly Gln Met Pro Gly Ser Leu Val Leu Ile Ile			
275	280	285	
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Ile Leu Cys Ser Val Phe Ala Val Val Thr Ile Leu Leu Val Gly Phe			

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ccc aac agc caa gcc cgg agt gag aaa gct ttc cat gac cag cat ttc Pro Asn Ser Gln Ala Arg Ser Glu Lys Ala Phe His Asp Gln His Phe 390		395		400
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				1691

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Tyr	Gly	Ala	Pro	Val	Phe	Pro	Phe	Leu	Ala	Ile	Gly	Gly	Tyr	Lys	Gly		
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aag	gac	tat	tct	gag	gca	gag	gcc	ctg	atc	atg	acg	ttc	tcc	ctc	aac		1787
Lys	Asp	Tyr	Ser	Glu	Ala	Glu	Ala	Leu	Ile	Met	Thr	Phe	Ser	Leu	Asn		
565								570					575				
aat	tac	cct	gcc	ggg	gac	ccc	cgt	ctg	gcc	cag	gcc	aag	ctg	tgg	gag		1835
Asn	Tyr	Pro	Ala	Gly	Asp	Pro	Arg	Leu	Ala	Gln	Ala	Lys	Leu	Trp	Glu		
580						585				590							
gag	gcc	ttc	tta	gag	gaa	atg	cga	gcc	ttc	cag	cgt	cg	atg	gct	ggc		1883
Glu	Ala	Phe	Leu	Glu	Glu	Met	Arg	Ala	Phe	Gln	Arg	Arg	Met	Ala	Gly		
595						600				605							
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Met	Phe	Gln	Val	Thr	Phe	Met	Ala	Glu	Arg	Ser	Leu	Glu	Asp	Glu	Ile		
610						615				620			625				
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Asn	Arg	Thr	Thr	Ala	Glu	Asp	Leu	Pro	Ile	Phe	Ala	Thr	Ser	Tyr	Ile		
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gtc	ata	ttc	ctg	tac	atc	tct	ctg	gcc	ctg	ggc	agc	tat	tcc	agc	tgg		2027
Val	Ile	Phe	Leu	Tyr	Ile	Ser	Leu	Ala	Leu	Gly	Ser	Tyr	Ser	Ser	Trp		
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agc	cga	gtg	atg	gtg	gac	tcc	aag	gcc	acg	ctg	ggc	ctc	ggc	ggg	gtg		2075
Ser	Arg	Val	Met	Val	Asp	Ser	Lys	Ala	Thr	Leu	Gly	Leu	Gly	Gly	Val		
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gcc	gtg	gtc	ctg	gga	gca	gtc	atg	gct	gcc	atg	ggc	ttc	ttc	tcc	tac		2123
Ala	Val	Val	Leu	Gly	Ala	Val	Met	Ala	Ala	Met	Gly	Phe	Phe	Ser	Tyr		
675						680				685							
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Leu	Gly	Ile	Arg	Ser	Ser	Leu	Val	Ile	Leu	Gln	Val	Val	Pro	Phe	Leu		
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Val	Leu	Ser	Val	Gly	Ala	Asp	Asn	Ile	Phe	Ile	Phe	Val	Leu	Glu	Tyr		
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Gln	Arg	Leu	Pro	Arg	Arg	Pro	Gly	Glu	Pro	Arg	Glu	Val	His	Ile	Gly		
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Arg	Ala	Leu	Gly	Arg	Val	Ala	Pro	Ser	Met	Leu	Leu	Cys	Ser	Leu	Ser		
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Glu	Ala	Ile	Cys	Phe	Phe	Leu	Gly	Ala	Leu	Thr	Pro	Met	Pro	Ala	Val		
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Arg	Thr	Phe	Ala	Leu	Thr	Ser	Gly	Leu	Ala	Val	Ile	Leu	Asp	Phe	Leu		
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gcc ccg gtg tac ttt gtt acc acc ttg ggc tac aac ttc tcc agc gag Ala Pro Val Tyr Phe Val Thr Thr Leu Gly Tyr Asn Phe Ser Ser Glu 900 905 910	2795
gct ggg atg aat gcc atc tgc tcc agt gca ggc tgc aac aac ttc tcc Ala Gly Met Asn Ala Ile Cys Ser Ser Ala Gly Cys Asn Asn Phe Ser 915 920 925	2843
ttc acc cag aag atc cag tat gcc aca gag ttc cct gag cag tct tac Phe Thr Gln Lys Ile Gln Tyr Ala Thr Glu Phe Pro Glu Gln Ser Tyr 930 935 940 945	2891
ctg gcc atc cct gcc tcc tcc tgg gtg gat gac ttc att gac tgg ctg Leu Ala Ile Pro Ala Ser Ser Trp Val Asp Asp Phe Ile Asp Trp Leu 950 955 960	2939
acc ccg tcc tcc tgc tgc cgc ctt tat ata tct ggc ccc aat aag gac Thr Pro Ser Ser Cys Cys Arg Leu Tyr Ile Ser Gly Pro Asn Lys Asp 965 970 975	2987
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ccc aaa ggc ggc ctg gca gca tac agc acc tct gtg aac ttg act	3173

Pro	Lys	Gly	Gly	Leu	Ala	Ala	Tyr	Ser	Thr	Ser	Val	Asn	Leu	Thr	
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Leu	Glu	Tyr	Ser	Gly	Thr	Ile	Ser	Ala	His	Cys	Asn	Leu	Tyr	Leu	
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Asn	Ser	Gln	Asp	Tyr	Thr	Glu	Ala	Leu	Arg	Ala	Ala	Arg	Glu	Leu	
1085				1090						1095					
gca	gcc	aac	atc	act	gct	gac	ctg	cgg	aaa	gtg	cct	gga	aca	gac	3398
Ala	Ala	Asn	Ile	Thr	Ala	Asp	Leu	Arg	Lys	Val	Pro	Gly	Thr	Asp	
1100				1105						1110					
ccg	gct	ttt	gag	gtc	tcc	ccc	tac	acg	atc	acc	aat	gtg	ttt	tat	3443
Pro	Ala	Phe	Glu	Val	Phe	Pro	Tyr	Thr	Ile	Thr	Asn	Val	Phe	Tyr	
1115				1120						1125					
gag	cag	tac	ctg	acc	atc	ctc	cct	gag	ggg	ctc	ttc	atg	ctc	agc	3488
Glu	Gln	Tyr	Leu	Thr	Ile	Leu	Pro	Glu	Gly	Leu	Phe	Met	Leu	Ser	
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Tyr	Asn	Ala	Val	Ser	Leu	Ile	Asn	Leu	Val	Ser	Ala	Val	Gly	Met	
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Ser	Val	Glu	Phe	Val	Ser	His	Ile	Thr	Arg	Ser	Phe	Ala	Ile	Ser	
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Thr	Lys	Pro	Thr	Trp	Leu	Glu	Arg	Ala	Lys	Glut	Ala	Thr	Ile	Ser	
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Met	Gly	Ser	Ala	Val	Phe	Ala	Gly	Val	Ala	Met	Thr	Asn	Leu	Pro	
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Phe Phe Phe Arg Leu Asn Leu Leu Ile Thr Leu Leu Gly Leu Leu			
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cat ggc ttg gtc ttc ctg ccc gtc atc ctc agc tac gtg ggg cct			3938
His Gly Leu Val Phe Leu Pro Val Ile Leu Ser Tyr Val Gly Pro			
1280	1285	1290	
gac gtt aac ccg gct ctg gca ctg gag cag aag cgg gct gag gag			3983
Asp Val Asn Pro Ala Leu Ala Leu Glu Gln Lys Arg Ala Glu Glu			
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Ala Val Ala Ala Val Met Val Ala Ser Cys Pro Asn His Pro Ser			
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cga gtc tcc aca gct gac aac atc tat gtc aac cac agc ttt gaa			4073
Arg Val Ser Thr Ala Asp Asn Ile Tyr Val Asn His Ser Phe Glu			
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ggt tct atc aaa ggt gct ggt gcc atc agc aac ttc ttg ccc aac			4118
Gly Ser Ile Lys Gly Ala Gly Ala Ile Ser Asn Phe Leu Pro Asn			
1340	1345	1350	
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Asn Gly Arg Gln Phe			
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<212> PRT

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Leu Met Thr Leu Ser Asn Val Ser Cys Leu Ser Asn Thr Pro Ala Arg
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Lys Ile Thr Gly Asp His Leu Ile Leu Leu Gln Lys Ile Cys Pro Arg
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Leu Tyr Thr Gly Pro Asn Thr Gln Ala Cys Cys Ser Ala Lys Gln Leu
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Val Ser Leu Glu Ala Ser Leu Ser Ile Thr Lys Ala Leu Leu Thr Arg
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Cys Pro Ala Cys Ser Asp Asn Phe Val Asn Leu His Cys His Asn Thr
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Cys Ser Pro Asn Gln Ser Leu Phe Ile Asn Val Thr Arg Val Ala Gln
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Leu Gly Ala Gly Gln Leu Pro Ala Val Val Ala Tyr Glu Ala Phe Tyr
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Gln His Ser Phe Ala Glu Gln Ser Tyr Asp Ser Cys Ser Arg Val Arg
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Val Pro Ala Ala Ala Thr Leu Ala Val Gly Thr Met Cys Gly Val Tyr
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Gly Ser Ala Leu Cys Asn Ala Gln Arg Trp Leu Asn Phe Gln Gly Asp
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Thr Gly Asn Gly Leu Ala Pro Leu Asp Ile Thr Phe His Leu Leu Glu
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Pro Gly Gln Ala Val Gly Ser Gly Ile Gln Pro Leu Asn Glu Gly Val
225 230 235 240

Ala Arg Cys Asn Glu Ser Gln Gly Asp Asp Val Ala Thr Cys Ser Cys
245 250 255

Gln Asp Cys Ala Ala Ser Cys Pro Ala Ile Ala Arg Pro Gln Ala Leu
260 265 270

Asp Ser Thr Phe Tyr Leu Gly Gln Met Pro Gly Ser Leu Val Leu Ile
275 280 285

Ile Ile Leu Cys Ser Val Phe Ala Val Val Thr Ile Leu Leu Val Gly
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Phe Arg Val Ala Pro Ala Arg Asp Lys Ser Lys Met Val Asp Pro Lys
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Lys Gly Thr Ser Leu Ser Asp Lys Leu Ser Phe Ser Thr His Thr Leu
325 330 335

Leu Gly Gln Phe Phe Gln Gly Trp Gly Thr Trp Val Ala Ser Trp Pro
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Leu Thr Ile Leu Val Leu Ser Val Ile Pro Val Val Ala Leu Ala Ala
355 360 365

Gly Leu Val Phe Thr Glu Leu Thr Thr Asp Pro Val Glu Leu Trp Ser
370 375 380

Ala Pro Asn Ser Gln Ala Arg Ser Glu Lys Ala Phe His Asp Gln His
385 390 395 400

Phe Gly Pro Phe Phe Arg Thr Asn Gln Val Ile Leu Thr Ala Pro Asn
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Arg Ser Ser Tyr Arg Tyr Asp Ser Leu Leu Leu Gly Pro Lys Asn Phe
420 425 430

Ser Gly Ile Leu Asp Leu Asp Leu Leu Leu Glu Leu Leu Glu Leu Gln
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Glu Arg Leu Arg His Leu Gln Val Trp Ser Pro Glu Ala Gln Arg Asn
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Ile Ser Leu Gln Asp Ile Cys Tyr Ala Pro Leu Asn Pro Asp Asn Thr
465 470 475 480

Ser Leu Tyr Asp Cys Cys Ile Asn Ser Leu Leu Gln Tyr Phe Gln Asn
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Thr Ser Gln Val Asp Trp Lys Asp His Phe Leu Tyr Cys Ala Asn Ala
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530 535 540

Asp Tyr Gly Ala Pro Val Phe Pro Phe Leu Ala Ile Gly Gly Tyr Lys
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Gly Lys Asp Tyr Ser Glu Ala Glu Ala Leu Ile Met Thr Phe Ser Leu
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Asn Asn Tyr Pro Ala Gly Asp Pro Arg Leu Ala Gln Ala Lys Leu Trp
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Glu Glu Ala Phe Leu Glu Glu Met Arg Ala Phe Gln Arg Arg Met Ala
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Gly Met Phe Gln Val Thr Phe Met Ala Glu Arg Ser Leu Glu Asp Glu
610 615 620

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625 630 635 640

Ile Val Ile Phe Leu Tyr Ile Ser Leu Ala Leu Gly Ser Tyr Ser Ser
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Trp Ser Arg Val Met Val Asp Ser Lys Ala Thr Leu Gly Leu Gly Gly
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Val Ala Val Val Leu Gly Ala Val Met Ala Ala Met Gly Phe Phe Ser

675

680

685

Tyr Leu Gly Ile Arg Ser Ser Leu Val Ile Leu Gln Val Val Pro Phe
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Leu Val Leu Ser Val Gly Ala Asp Asn Ile Phe Ile Phe Val Leu Glu
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Tyr Gln Arg Leu Pro Arg Arg Pro Gly Glu Pro Arg Glu Val His Ile
725 730 735

Gly Arg Ala Leu Gly Arg Val Ala Pro Ser Met Leu Leu Cys Ser Leu
740 745 750

Ser Glu Ala Ile Cys Phe Phe Leu Gly Ala Leu Thr Pro Met Pro Ala
755 760 765

Val Arg Thr Phe Ala Leu Thr Ser Gly Leu Ala Val Ile Leu Asp Phe
770 775 780

Leu Leu Gln Met Ser Ala Phe Val Ala Leu Leu Ser Leu Asp Ser Lys
785 790 795 800

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Glu Leu Pro Pro Pro Gly Gln Gly Glu Gly Leu Leu Leu Gly Phe Phe
820 825 830

Gln Lys Ala Tyr Ala Pro Phe Leu Leu His Trp Ile Thr Arg Gly Val
835 840 845

Val Leu Leu Leu Phe Leu Ala Leu Phe Gly Val Ser Leu Tyr Ser Met
850 855 860

Cys His Ile Ser Val Gly Leu Asp Gln Glu Leu Ala Leu Pro Lys Asp
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Ser Tyr Leu Leu Asp Tyr Phe Leu Phe Leu Asn Arg Tyr Phe Glu Val
885 890 895

Gly Ala Pro Val Tyr Phe Val Thr Thr Leu Gly Tyr Asn Phe Ser Ser
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Glu Ala Gly Met Asn Ala Ile Cys Ser Ser Ala Gly Cys Asn Asn Phe
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Ser Phe Thr Gln Lys Ile Gln Tyr Ala Thr Glu Phe Pro Glu Gln Ser
930 935 940

Tyr Leu Ala Ile Pro Ala Ser Ser Trp Val Asp Asp Phe Ile Asp Trp
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Leu Thr Pro Ser Ser Cys Cys Arg Leu Tyr Ile Ser Gly Pro Asn Lys
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Asp Lys Phe Cys Pro Ser Thr Val Asn Ser Leu Asn Cys Leu Lys Asn
980 985 990

Cys Met Ser Ile Thr Met Gly Ser Val Arg Pro Ser Val Glu Gln Phe
995 1000 1005

His Lys Tyr Leu Pro Trp Phe Leu Asn Asp Arg Pro Asn Ile Lys
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Gly Leu Asp Leu Arg Ser Gly Leu Leu Asn Leu Leu Ser Ile Val
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